RECEIVED
CENTRAL FAX CENTER
NOV 1 6 2006

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. All pending claims are reproduced below, including those that remain unchanged:

Claims 1-21 (Cancelled).

22. (Currently amended) A method of etching an insulating layer in a wafer to present a clean and fresh surface on the insulation layer for a deposition on the insulating layer, including the steps of:

providing a relatively strong electrical field at first positions in an enclosure,

providing a relatively weak electrical field at second positions displaced in the enclosure from the first positions, the relatively weak electrical [[fields]] field defining a capacitor with a high impedance to limit the transfer of electrical charges to the insulating layer in the wafer,

passing molecules of an inert gas through the enclosure, and providing a magnetic field in the enclosure in a direction relative to the strong electrical field to obtain a movement of electrons in the enclosure at the positions of the strong electrical field and an ionization of molecules of the inert gas by the electrons and a movement of the ions in a direction relative to the weak electrical field to obtain a movement of the ions, in accordance with the high impedance of the capacitor defined by the relatively weak field, to the second electrode at a speed for etching the surface of the insulating layer on the wafer substantially uniformly without pitting the insulating layer.

23. (Original) A method as set forth in claim 22 wherein

the relatively strong electrical field is provided in a first direction and

the relatively weak electrical field is provided in a second direction opposite to the first direction and wherein

PAGE 3/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54

the magnetic field is provided in a direction transverse to the first and second directions to produce a movement of the electrons in the enclosure in a helical path for facilitating the ionization of molecules of the inert gas in the enclosure,

24. (Original) A method as set forth in claim 22

the wafer is disposed in the weak electrical field and wherein

the molecules of the inert gas are passed through the enclosure initially to positions in the strong electrical field to obtain an ionization of molecules of the inert gas and subsequently through the enclosure to positions in the weak electrical field to facilitate an etching of the surface of the insulating layer on the wafer by the ions.

25. (Original) A method as set forth in claim 22 wherein

the wafer is disposed in the relatively weak electrical field and wherein

an electrode providing the relatively weak field is spaced from, but disposed relatively close to, the wafer to cooperate with the wafer in providing a high impedance in the capacitor and a circuit including the capacitor for attracting the ions in the weak electrical field to the wafer to etch the surface of the insulating layer on the wafer without pitting the insulating layer.

26. (Currently amended) A method as set forth in claim [[21]] <u>22</u> wherein

the capacitor constitutes a first capacitor and wherein

the relatively weak electrical field is defined by the first capacitor and a second capacitor in a series circuit and wherein

the first capacitor is defined by plates constituting an electrode and the wafer and in which the plates are separated by a space in which molecules and ions of the inert gas are disposed to define the insulator for the capacitor and to provide the first capacitor with the high impedance and wherein

PAGE 4/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54

a second capacitor is defined by plates constituting the wafer and the ions of the inert gas in the enclosure and wherein the plates are separated by the insulating layer in the wafer to define the insulator of the second capacitor and to provide the second capacitor with a relatively low impedance in comparison to the high impedance of the first capacitor.

27. (Original) A method as set forth in claim 26 wherein

the relatively strong electrical field is provided by a first electrode and a first alternating voltage providing a relatively high negative bias on the first electrode and wherein

the relatively weak electrical field is provided by a second electrode and by a second alternating voltage providing a relatively low bias on the second electrode.

28. (Original) A method as set forth in claim 26 wherein

the wafer is disposed in the weak electrical field and wherein

the molecules of the inert gas are passed through the enclosure initially through positions in the strong electrical field to obtain an ionization of molecules of the inert gas and subsequently through positions in the weak electrical field to facilitate an etching of the surface of the insulating layer on the wafer by the ions and wherein

the wafer is disposed in the relatively weak electrical field and wherein

an electrode providing the relatively weak field is spaced from, but disposed relatively close to, the wafer to cooperate with the wafer in providing a high impedance in the capacitor and a circuit including the capacitor for attracting the ions in the weak electrical field to the wafer to etch the surface of the insulating layer on the wafer without pitting the insulating layer.

29. (Currently amended) A method as set forth in claim 26 wherein

~~the capacitor constitutes a first capacitor and wherein~~

PAGE 5/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54

~~the first capacitor and a second capacitor are in series and wherein~~

~~the first capacitor is defined by plates constituting an electrode and the wafer and in which the plates are separated by a space in which molecules and ions of the inert gas are disposed to define the insulator for the capacitor and to provide the high impedance and wherein~~

~~the second capacitor is defined by plates constituting the wafer and the ions of the inert gas in the enclosure and wherein the plates are separated by the insulating layer in the wafer to define the insulator of the second capacitors and to provide a relatively low impedance in comparison to the high impedance of the first capacitor and wherein~~

the relatively strong electrical field is provided by a first electrode and a first alternating voltage providing a relatively high negative bias on the first electrode and wherein

the relatively weak electrical field is provided by a second electrode and by a second alternating voltage providing a relatively low bias on the second electrode.

30. (Original) A method of etching an insulating layer on a wafer to present a clean and fresh surface on the insulating layer for deposition, including the steps of

passing molecules of an inert gas through an enclosure,

disposing a first electrode in the enclosure to provide a strong electrical field in a first direction at first positions in the enclosure to ionize molecules of the inert gas in the enclosure,

disposing a second electrode in the enclosure to provide a weak electrical field at second positions in the enclosure in a second direction opposite to the first direction,

providing a magnetic field in the enclosure, in a direction transverse to the first and second directions, to cooperate with the strong electrical field in producing charged particles in the enclosure and to cooperate with the weak electrical field in producing a transfer of the charged particles to the

PAGE 6/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54

surface of the insulating layer in the wafer to provide a weak and controlled etching of the surface of the insulating layer without producing pits in the surface of the insulating layer.

31. (Original) A method as set forth in claim 30 wherein

the molecules of the inert gas pass through the enclosure from the strong electrical field to the weak electrical field and wherein

the magnetic field is substantially perpendicular to the first and second electrical fields.

32. (Original) In a combination in claim 30 wherein

the strong electrical field is defined in part by the first electrode and by an alternating voltage applied at a first magnitude to the first electrode to bias the first electrode at a negative DC potential with a first magnitude and wherein

the weak electrical field is defined in part by the second electrode and by an alternating voltage applied to the second electrode at a second magnitude less than the first magnitude to bias the second electrode at a negative DC potential with a second magnitude less than the first magnitude for producing the transfer of the charged particles to the surface of the wafer to provide the weak and controlled etching of the surface of the insulating layer without producing pits in the surface of the insulating layer.

33. (Original) In a combination as set forth in claim 30 wherein

the magnetic field is provided by magnetic members and wherein

the magnetic members and the first and second electrodes define the enclosure.

34. (Original) In a combination as set forth in claim 30 wherein

the wafer is disposed in the weak electrical field and is separated from the second electrode in the weak electrical field.

PAGE 7/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54

35. (Original) In a combination as set forth in claim 30 wherein

the magnetic field is substantially perpendicular to the strong and weak electrical fields and wherein

the molecules of the inert gas pass into the enclosure through the strong magnetic field and the molecules and the ions of the inert gas pass from the enclosure through the weak electrical field.

36. (Original) A method as set forth in claim 30 wherein

the second electrode and the wafer constitute plates of a first capacitor and ions and molecules of the inert gas constitute the dielectric of the first capacitor and wherein

the wafer and the ions of the inert gas constitutes plates of a second capacitor and wherein the insulating layer of the wafer constitute the dielectric of the second capacitor and wherein

the first capacitor has a higher impedance than the second capacitor.

37. (Original) A method of etching an insulating layer on a wafer having at least one socket, defined by walls in the insulating layer, to present a clean and fresh surface on the insulating layer, including the walls of the socket, for deposition, including the steps of:

passing molecules of an inert gas through an enclosure,

providing a strong electrical field at first positions in the enclosure to ionize molecules of the inert gas in the enclosure

providing a weak electrical field at second positions, including the positions of the wafer, in the enclosure, and

providing a magnetic field in the enclosure in a direction transverse to the directions of the first and second electrical fields in the enclosure to cooperate with the strong electrical field in producing charged particles and to cooperate with the weak electrical field in producing a transfer of the charged particles to the surface of the insulating layer in the wafer and

PAGE 8/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54

the walls of the socket in the insulating layer at a low speed to provide a weak and controlled etching of a uniform thickness from the surface of the insulating layer and the walls of the socket without pitting the surface of the insulating layers or the walls of the socket.

38. (Original) A method as set forth in claim 37, including the steps of:

providing a first electrode in the enclosure for the strong electrical field and introducing an alternating voltage of a first particular amplitude to the first electrode to produce a strong negative DC bias on the first electrode for the creation of the strong electrical field,

providing a second electrode in the enclosure for the weak electrical field and introducing an alternating voltage of a second particular amplitude less than the first particular amplitude to the second electrode to produce a weak negative DC bias on the second electrode for the creation of the weak electrical field.

39. (Original) A method as set forth in claim 37, including the steps of:

disposing the wafer in the enclosure in a spaced relationship to the second electrode to provide a high impedance between the second electrode and the wafer for limiting the transfer of charged particles to the surface of the insulating layer and the walls of the socket and for providing for an elimination of a substantially uniform thickness from the surface of the insulating layer and from the surfaces of the walls of the socket.

40. (Original) A method as set forth in claim 37, including the steps of:

providing a first electrode to create the strong electrical field,

providing a second electrode to create the weak electrical field,

providing magnets to create the magnetic field,

the first and second electrodes and the magnets substantially defining the enclosure, and

PAGE 9/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54

disposing the wafer in the enclosure in closely spaced relationship to the second electrode.

41. (Original) A method as set forth in claim 37 wherein

the wafer is at a floating potential and wherein

the magnets are substantially at a ground potential and wherein

first and second members substantially at ground potential are provided respectively in proximity to the first and second electrodes to cooperate respectively with the first and second electrodes in creating the strong and weak electrical fields.

42. (Original) A method as set forth in claim 37 including the steps of

introducing an alternating voltage of a first particular magnitude to the first electrode to produce a strong negative DC bias on the first electrode for the creation of the strong electrical field,

introducing an alternating voltage of a second particular magnitude less than the first particular magnitude to the second electrode to produce a weak negative bias on the second electrode for the creation of the weak electrical field, and

providing a high impedance between the second electrode and the wafer and a low impedance between the wafer and the charged particles near the wafer to produce a transfer of charged particles with limited energy to the surface of the insulating layer and the walls of the socket in the insulating layer and to provide the weak and controlled etching of the surface of the insulating layer and the walls of the socket with a uniform thickness of material from the insulating layer and the wall of the socket without pitting the surface of the insulating layer or the walls of the socket.

PAGE 10/13 * RCVD AT 11/16/2006 2:56:00 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/8 * DNIS:2738300 * CSID:415 362 2928 * DURATION (mm-ss):01-54